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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/571,246

12/05/2006

Joachim Rudhard

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EXAMINER

KUSUMAKAR, KAREN M

ART UNIT

PAPER NUMBER

2829

MAIL DATE

DELIVERY MODE

12/11/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/571,246	Applicant(s) RUDHARD, JOACHIM	
	Examiner KAREN M. KUSUMAKAR	Art Unit 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/11/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. As of the amendment filed 8/18/08, no claims have been added, canceled, or amended. Therefore, claims 9-16 remain pending, with claims 1 and 16 being independent.

Response to Arguments

2. Applicant's arguments, see amendment filed 8/18/08, with respect to the rejection(s) of claim(s) 9-16 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 9-12 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by ***Tillack et al. (Applicant's admitted prior art filed in IDS dated 9/11/08).***

As to claim 9, Tillack teaches a method for producing at least one of (a) etched holes and (b) etched trenches of a component based on one of (c) silicon

and (d) a layered silicon/insulator structure (See abstract), the method comprising: providing at least one of a germanium-containing layer and a germanium layer at a point at which or in whose surroundings an etching procedure is to be completed (page. 104, section B, first paragraph); detecting at least one of germanium and germanium compounds during the etching procedure (page 104, column 2, lines 11-17); and controlling the etching procedure as a function of the detection (page 105, section IV).

As to claim 10, Tillack further teaches the controlling includes interrupting the etching procedure (page 105, section IV).

As to claim 11, Tillack further teaches at least one of the germanium and germanium-containing layer is buried in a layered structure (page 102, Part A, first sentence).

As to claim 12, Tillack further teaches applying at least one of the germanium and germanium-containing layer to a back of a silicon wafer (page 102, Part A, first couple sentences).

As to claim 15, Tillack further teaches the at least one of germanium and germanium compounds is detected using one of optical emission spectroscopy and mass spectroscopy (page 103, first column, last paragraph of Part B).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Tillack*** in view of ***Partridge et al. (US 2004/0245586)***.

As to claim 13, Tillack teaches all the limitations of claim 9 but does not explicitly teach removing at least one of the germanium and germanium-containing layer after completion of an etching procedure up to at least one of the germanium and germanium-containing layer. Tillack teaches a method for non-invasively monitoring the etching process but is silent on what the next step is after etching. Partridge teaches removing at least one of the germanium and germanium-containing layer after completion of an etching procedure up to at least one of the germanium and germanium-containing layer (page 1, [0058], Fig. 6C-6E).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the etching procedure of Tillack in the MEMS device fabrication process of Partridge so as to have a more sensitive and accurate indicator of when to stop etching (Tillack, page 105, Part IV, second to last sentence).

As to claim 14, Tillack teaches all the limitations of claim 9 but does not explicitly teach at least one of the germanium and germanium-containing layer is simultaneously used as a component functional layer. However, Partridge does teach at least one of the germanium and germanium-containing layer is simultaneously used as a component functional layer (page 1, [0058], Fig. 6C-6E, layer 32 contains mechanical elements 20a-d).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the germanium-containing layer of Tillack as a component functional layer as taught by Partridge so as to make a MEMS device.

7. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Bernstein (US 5,335,210)*** in view of ***Mizuno et al. (US 2001/0048119)***.

As to claim 16, Bernstein teaches a diaphragm sensor unit (see abstract) comprising: a substrate made of one of silicon and a layered silicon/insulator structure (Silicon chip 12, Fig. 1); and a flat diaphragm (movable electrode 16, Fig. 1, col. 3:17-18) for implementing a sensor element structure for a sensor (col. 3:27-29).

Bernstein does not teach at least one of a germanium and germanium-containing layer is situated in the layered structure. Bernstein does teach the silicon chip can be germanium or any other semiconductor, ceramic, or metal

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(col. 2:66-68). Silicon and germanium are art recognized suitability that can be substituted for each other or used in combination. They belong to the same group in the periodic table and exhibit similar characteristics. Adding a germanium layer to a substrate is also well known (as evidenced by Mizuno on page two, paragraph 35, and shown in figure 5). It has been held that selecting a known compound to meet known requirements is not distinguishable over the prior art. MPEP 2144.07. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

As to claims 17 and 18, Bernstein in view of Mizuno does teach the flat diaphragm is made entirely of germanium (col. 3:9-14, if it is made entirely of germanium, then it contains germanium).

Conclusion

8. Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

Commissioner for Patents

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Hand-Delivered responses should be brought to:

Customer Service Window

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Art Unit: 2829

401 Dulany Street

Alexandria, VA 22313

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAREN M. KUSUMAKAR whose telephone number is (571) 270-3520. The examiner can normally be reached on Mon - Thurs 7:30a - 5:00p EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ha Nguyen can be reached on 571-272-1678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. M. K./
Examiner, Art Unit 2829
12/8/2008

/Ha T. Nguyen/

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Supervisory Patent Examiner, Art Unit 2829